

Amendments to the Claims

1. (Currently amended) A hollow metal fitting for use in making a welded metal joint with reduced residual stresses, which fitting comprises

A. an internal annular shoulder having an inner diameter; and

B. an annular wall which

(1) extends from the shoulder,

(2) has a cylindrical inner surface,

(3) has a cylindrical outer surface whose diameter is greater than the inner diameter of the shoulder,

(4) defines with the shoulder a cylindrical socket having a common longitudinal axis with the annular wall, and

(5) has an end surface connecting the cylindrical outer and inner surfaces, which end surface is chamfered so that the inner surface extends away from the shoulder, and beyond the outer surface, in the axial direction and so that the end surface, as viewed in a cross section taken along the longitudinal axis of the annular wall, is concave.

2. (Original) A fitting according to claim 1 wherein the chamfered end surface terminates in an annular lip at the cylindrical inner surface of the annular wall.

3. (Currently amended) A hollow metal fitting for use in making a welded metal joint with reduced residual stresses, which fitting comprises

A. an internal annular shoulder having an inner diameter; and

B. an annular wall which

(1) extends from the shoulder,

(2) has a cylindrical inner surface,

(3) has a cylindrical outer surface whose diameter is greater than the inner diameter of the shoulder,

(4) defines with the shoulder a cylindrical socket having a common longitudinal axis with the annular wall, and

(5) has an end surface connecting the cylindrical outer and inner surfaces, which end surface is chamfered so that the inner surface extends away from the shoulder, and beyond the outer surface, in the axial direction and so that the end surface, as viewed in a cross section taken along the longitudinal axis of the annular wall, is concave, with the chamfered end surface terminating, at the cylindrical inner surface of the annular wall, in an annular lip connected to an annular ring by thin, radially spaced bars which are parallel to the longitudinal axis.

4. (Original) A fitting according to claim 3 wherein the annular ring is thicker than the bars in a direction perpendicular to the longitudinal axis.

5. (Currently amended) A method of forming a socket-welded metal joint with reduced residual stresses resulting from the welding, which method comprises

I. providing an assembly comprising

A. a hollow metal fitting which includes

(1) an internal annular shoulder having an inner diameter; and

(2) an annular wall which

(a) extends from the shoulder,

(b) has a cylindrical inner surface,

(c) has a cylindrical outer surface whose diameter is greater than the inner diameter of the shoulder,

(d) defines with the shoulder a cylindrical socket having a common longitudinal axis, and

(e) has an end surface connecting the cylindrical outer and inner surfaces, which end surface is chamfered so that the inner surface extends away from the shoulder, and beyond the outer surface, in the axial direction and has a profile such that, as viewed in a cross section taken along the longitudinal axis, there is an angle in the range of from 100 degrees to 120 degrees between the major portion of the end surface and said longitudinal axis; and

B. a metal pipe which includes at one end (1) a cylindrical outer surface which has a uniform radial profile and is free of any dam, pocket, projection, recess, or

similar feature that could require the pipe to be configured, dimensioned, selected, or positioned to work with or otherwise correspond to a particular fitting, and (2) a cylindrical inner surface, with the endmost portion of the pipe at said end being disposed in the socket so that the outer surface of the pipe is within the inner surface of the annular wall of the socket; and

II. welding the fitting and the pipe together by applying an annulus of added bead metal to the chamfered end surface of the fitting so as to surround the chamfered end surface, and fusing the base metal of the annular wall and pipe.

6. (Currently amended) A method according to claim 5 wherein the outer surface of the pipe is cylindrical over its entire length.

7. (Currently amended) A method according to claim 5 wherein the chamfered end surface, as viewed in said cross section, includes a straight line.

8. (Currently amended) A method according to claim 5 wherein the chamfered end surface, as viewed in said cross section, is a straight line.

9. (Currently amended) A method according to claim 5 wherein the chamfered end surface, as viewed in said cross section, is concave.

10. (Currently amended) A method according to claim 5 wherein the chamfered end surface terminates in an annular lip at the cylindrical inner surface of the annular wall.

11. (Currently amended) An assembly ready to be welded to form a socket-welded metal joint with reduced residual stresses resulting from the welding, which assembly comprises

A. a hollow metal fitting which includes

- (1) an internal annular shoulder having an inner diameter; and
- (2) an annular wall which

- (a) extends from the shoulder,
- (b) has a cylindrical inner surface,
- (c) has a cylindrical outer surface whose diameter is greater than the inner diameter of the shoulder,
- (d) defines with the shoulder a cylindrical socket having a common longitudinal axis, and
- (e) has an end surface connecting the cylindrical outer and inner surfaces, which end surface is chamfered so that the inner surface extends beyond the outer surface in the axial direction and has a profile such that, as viewed in a cross section taken along the longitudinal axis, there is an angle in the range of from 100 degrees to 120 degrees between the major portion of the end surface and said longitudinal axis and so that the chamfered end surface terminates, at the cylindrical inner surface of the annular wall, in an annular lip connected to an annular ring by radially spaced bars which are parallel to the longitudinal axis; and

B. a metal pipe which includes a cylindrical outer surface and a cylindrical inner surface, with one end of the pipe being disposed in the socket so that the outer surface of the pipe is within the inner surface of the annular wall of the socket;

whereby the assembly is ready to be welded by an annular weld which adheres the chamfered end surface of the fitting to the cylindrical outer surface of the pipe.

12. (Original) An assembly according to claim 11 wherein the annular ring is thicker than the bars in a direction perpendicular to the longitudinal axis.

13. (Currently amended) An assembly ready to be welded to form a socket-welded metal joint with reduced residual stresses resulting from the welding, which assembly comprises

A. a hollow metal fitting which includes

- (1) an internal annular shoulder having an inner diameter; and
- (2) an annular wall which
 - (a) extends from the shoulder,
 - (b) has a cylindrical inner surface,

(c) has a cylindrical outer surface whose diameter is greater than the inner diameter of the shoulder,

(d) defines with the shoulder a cylindrical socket having a common longitudinal axis, and

(e) has an end surface connecting the cylindrical outer and inner surfaces, which end surface is chamfered so that the inner surface extends beyond the outer surface in the axial direction and has a profile such that, as viewed in a cross section taken along the longitudinal axis, there is an angle in the range of from 100 degrees to 120 degrees between the major portion of the end surface and said longitudinal axis and so that the chamfered end surface terminates, at the cylindrical inner surface of the annular wall, in an annular lip spaced from an annular metal ring surrounding the pipe, which annular ring is separate from the fitting; and

B. a metal pipe which includes a cylindrical outer surface and a cylindrical inner surface, with one end of the pipe being disposed in the socket so that the outer surface of the pipe is within the inner surface of the annular wall of the socket;

whereby the assembly is ready to be welded by an annular weld which adheres the chamfered end surface of the fitting to the cylindrical outer surface of the pipe.

14. (Currently amended) A socket welded metal joint with reduced residual stresses resulting from the welding, which joint was made by a method according to claim 5.

15. (Original) A joint according to claim 14 wherein the outer surface of the pipe is cylindrical over its entire length.

16. (Original) A joint according to claim 14 wherein the interface between said added bead metal and said fused base metal of the annular wall and the pipe, as viewed in said cross section, includes a straight line.

17. (Original) A joint according to claim 14 wherein the interface between said added bead metal and said fused base metal of the annular wall and the pipe, as viewed in said cross section, is a straight line.

18. (Original) A joint according to claim 14 wherein the interface between said added bead metal and said fused base metal of the annular wall and the pipe, as viewed in said cross section, is concave.